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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,938	10/30/2003	Olivier Rayssac	4717-7900	6283

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EXAMINER	
SMITH, BRADLEY	

ART UNIT	PAPER NUMBER
2891	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,938	RAYSSAC	
	Examiner	Art Unit	
	Bradley K. Smith	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-8,11-14,17 and 20* is/are rejected.

7)☒ Claim(s) *9,10,15,16,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *search notes*.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 8, 11-14 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Maleville et al. (US Pregrant Publication 2004/0112866). Maleville et al. disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern. With regards to claim 2 Maleville et al. disclose bonding the surface to a detachable semiconductor structure (figures 1a-1f). With regards to claim 8 Maleville et al. disclose ion bombardment is controlled to smooth the surface to a roughness value suitable for molecular bonding (see paragraph 0009). With regards to claim 11-14, Maleville et al. disclose directing the ion clusters to selectively treat desired zones of the surface to create an adjusted pattern thereon (see paragraph 0036). With regards to claim 17, Maleville et al. disclose the wafer is recycled.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maleville et al. (US Pregrant Publication 2004/0112866) in view of Furukawa et al. (US Patent 4,990,994). Maleville et al. disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern. However Maleville et al. fail to disclose implanting ions to react with the substrate. Whereas Furukawa et al. disclose bombarding the substrate with Argon ions. With regards to claim 4, Furukawa et al. disclose the semiconductive material is made of SiC. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings in order to form a material in a controled manner.

3. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maleville et al. (US Pregrant Publication 2004/0112866) in view of Yamada et al. (US Pregrant Publication 2005/0042800). Maleville et al. disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern. However Maleville et

al. fail to disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern. Whereas Yamada et al. disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern (see abstract). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings in order to roughen the surface.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maleville et al. (US Pregrant Publication 2004/0112866). Maleville et al. disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern. However Maleville et al. fail to disclose the controlling of the ion beam. But the examiner contends that one of ordinary skill in the art at the time the invention was made would have been able to control the ion beam parameters in order to most efficiently implant the ions.

Allowable Subject Matter

5. Claims 9, 10,15, 16 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record neither teaches nor suggests controlling the ions by controlling the pressure of the ion source (claim 9), controlling the acceleration voltage in order to control the etch rate (claim 10), creating a pattern with different roughnesses in comparison to other surfaces on the wafer (claims 15 and 16), a material that is different than the semiconductor material and providing the surface that is to be etched (claims 18 and 19).

Response to Arguments

7. Applicant's arguments filed 6/29/05 have been fully considered but they are not persuasive. In order to over come the Maleville et al. reference the applicant needs to supply a translation of the foreign priority document.

8. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is (571) 272-1884. The examiner can normally be reached on 10-6 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BRADLEY K. SMITH
PRIMARY EXAMINER